

ABSTRACT OF THE DISCLOSURE

The invention provides a friction stir welding apparatus and method and a processing apparatus and method, which are not easily affected by deformations of a work being processed. The friction stir welding apparatus inserts a rotating tool into the work and moves the rotating tool relative to the work to join members of the work. The friction stir welding apparatus and method and the processing apparatus and method of the invention, the latter cutting or grinding the work with a rotating cutter or grindstone, comprises controlling a relative distance between the tool, cutter or grindstone and the work under the joining or processing operation or an insertion depth so that the load factor or electric current of a spindle motor for rotating the tool, cutter or grindstone is within a predetermined range, and a controller therefor.